

**HEALTH AND SAFETY PLAN
AMBRIDGE AREA BROWNFIELDS PARTNERSHIP
MULTIPLE PROPERTIES
AMBRIDGE, PENNSYLVANIA 15003**

Prepared for:
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ATTACHMENTS

Directions to Hospital
Material Safety Data Sheets
Signature Sheet

1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared to address health and safety issues associated with a Phase II Environmental Site Assessment (Phase II ESA) investigating soil (both surface and subsurface) and groundwater. The scope of work includes sampling of both surface and subsurface soil and groundwater. Because the HASP is a dynamic document, changes in the scope of work affecting the HASP will be addressed through addendums to the HASP. This HASP is prepared for investigative work activities only. Remediation of observed recognized environmental conditions is not within the scope of this Phase II ESA. Should environmental remediation activities ultimately be performed, a HASP will be prepared specific to those activities.

1.1 Task Name

A Phase II Environmental Site Assessment will be conducted for the Borough of Ambridge Area Brownfields Partnership (the Partnership) targeting multiple properties located along a corridor bounded by Merchant Street, Duss Avenue, Eleventh Street and Nineteenth Street (Site).

1.2 Task Description

According to the methodology put forth in the scope of work, an initial soil screening step of the surficial soils will be conducted using x-ray fluorescence (XRF) technology to detect inorganics. After this initial screening step, surface soil samples will be collected across the Site based on the historical data reviewed from the Phase I Environmental Site Assessments (Phase I ESA's) and the field screening using XRF technology. These samples will be analyzed for semi-volatile organic compounds (SVOCs) (Method 8270), polychlorinated biphenyls (PCBs) (Method 8080), and target analyte list (TAL) inorganics (6000/7000 series) and used to aid in determining the number and placement of soil borings on across the Site. The soil borings will be advanced to a minimum depth of 25 feet or the observed water table/equipment refusal, whichever is shallower. Soil samples will be collected at each boring and analyzed for volatile organic compounds (VOCs) (Method 8260), SVOCs, PCBs, and TAL inorganics. Each boring will be backfilled with bentonite upon completion. Furthermore, a number of groundwater monitoring wells will be installed on the site. These wells will be installed using hollow stem auger techniques with split-spoon sampling to determine the depth to groundwater at each location. Each well will be constructed of two-inch PVC screen and riser, and equipped with locking steel protector caps. All wastes, including drill cuttings and waste water, accumulated during field operations will be containerized for appropriate disposal.

1.3 Corporate Safety Responsibilities

The primary personnel involved in health and safety activities for the Phase II Environmental Site Assessment include the following personnel:

Health and Safety Resources	Title
Charles Haefner, Jr.	Project Manager
Raymond Brenner or Alternate	Principal Investigator

The KU Resource's Corporate Health and Safety Officer, along with the two principles, David Kerschner

and Mark Urbassik, are responsible for updating Health and Safety Plans (HASP), investigating serious injuries and incidents, conducting formal health and safety audits of long-term projects, the respiratory protection program, the medical monitoring program, and the hazard communication program. Mark Urbassik will serve as the primary contact for the project. However, Charles Haefner, Jr. will serve as the primary technical lead, including oversight of field investigation activities, for this project.

1.4 Project Level Safety Responsibilities

Health and safety responsibilities assigned on the project level will include the Project Safety Officer (PSO), Raymond Brenner, or his designee. The PSO is responsible for implementation of the Site Health and Safety Plan (SHSP) and making recommendations regarding worker health and safety issues such as appropriate personal protective equipment (PPE), required air monitoring, and decontamination procedures.

The PSO is also responsible for implementation of the Health and Safety Plan at the worksite, conducting or directing appropriate air monitoring, and conducting tailgate safety meetings at appropriate intervals. The PSO has the authority, and is required, to stop work if any operation threatens worker or public health and safety.

If subcontractors are required to perform site activities, each subcontractor will be required to designate a safety officer who will be responsible for the health and safety of their employees.

1.5 Additional Safety References

In addition to this HASP, KU Resources will comply with other applicable safety requirements and with all requirements of 29 CFR 1910.120, and 29 CFR 1926.

2.0 HAZARD CHARACTERIZATION AND REDUCTION

2.1 General Site Description

There are four properties associated with the project. The properties are located along a corridor bounded by Merchant Street, Duss Avenue, Eleventh Street, and Nineteenth Street. The project includes three properties along 19th Street (the Centria property, the 19th Street Right of Way, and the CECO Corporation property), the Toth property, the former Bollinger Steel Property, and the Ambridge Industrial Park property. Each of these properties were previously used in steel production and industries associated with the production of steel. The properties currently contain active and abandoned buildings. Currently there are limited controls present at any of the properties to prevent unauthorized personal from entering on to the properties. Numerous pre-existing physical and chemical hazards may be encountered on each of the properties. The physical hazards include uneven terrain, structurally unsafe buildings, along with slip, trip, and fall hazards associated with miscellaneous debris scattered about the properties. Chemical hazards that may be encountered would be exposure to legacy constituents used in both historical and current industrial production at each of the properties. Additionally, any equipment, such as drilling equipment, brought onto the properties during investigative activities will increase the amount of physical or chemical hazards.

2.2 Chemical Hazards

Chemical hazards that may be encountered in groundwater and soils during sampling activities at the Site include volatile and semi-volatile organic compounds (VOCs and SVOCs), TAL inorganics, and polychlorinated biphenyls (PCBs). These hazards will be monitored, assessed, and addressed by the PSO utilizing the following protocols.

There are three primary pathways by which site workers can be exposed to chemical hazards: inhalation, ingestion, and dermal contact. The chemical exposures across these pathways can cause two types of effects, acute and chronic. Acute effects happen during, or shortly after, exposure to a sufficiently high concentration of a chemical. Chronic effects occur after repeated, or constant, exposures for a long period of time. Regulatory exposure limits, such as Permissible Exposure Limits, may be related to some acute effect, such as respiratory irritation, or some chronic effect, such as cancer. Symptoms of chemical exposure may include behavioral changes, breathing difficulties, skin color changes, coordination difficulties, coughing, dizziness, weakness, irritability, skin irritation, eye irritation, respiratory tract irritation, headache, nausea, light-headedness, sneezing, etc.

Routes of exposure to chemical hazards are used to select PPE and air monitoring protocols. It is generally appropriate to consider exposure routes for compound classes. For example, the high volatility of VOCs often presents an inhalation hazard and necessitates respiratory protection when exposure levels are above established limits. Additionally, many VOCs cause skin and eye irritation, requiring appropriate PPE. Air monitoring with direct-reading instruments will be conducted during sampling events to ensure that the appropriate PPE and engineering controls are being used. The NIOSH *Pocket Guide to Chemical Hazards* will be available at the Site to serve as a chemical hazard reference for site-related compounds.

The primary hazard associated with SVOCs and TAL inorganics during sampling is the inhalation and ingestion of dust and soil, and dermal contact with site-affected media. Under ambient outdoor conditions, many SVOCs and TAL inorganics do not reach sufficient concentration in air to warrant respiratory protection (especially when present in low concentrations in soil or water). In addition, airborne concentrations of many SVOCs cannot be measured with "real-time" monitoring equipment. Often there are limited quantitative data available regarding odor and irritation thresholds. Semi-volatile compounds that may be present at the Site include polynuclear aromatic hydrocarbons (PAHs) and PCBs.

PCBs are considered carcinogenic compounds, irritate eyes and skin, and can cause liver damage (particularly cancer). Appropriate engineering controls, PPE, and good hygiene practices will be employed to minimize exposure to semi-volatile compounds.

The following precautions will be taken to reduce the potential chemical hazard at the site:

- During soil and groundwater sampling, field personnel will conduct air monitoring with a photoionization detector (PID) instrument to characterize concentrations of volatile contaminants in the breathing space. Dräger tubes will be used if applicable and necessary.
- Engineering controls and/or appropriate respiratory protection will be used if visible dust is consistently present in the breathing space.
- A portable fan will be used as an engineering control if organic vapor concentrations in the breathing space rise above action levels.
- Groundwater purged from monitoring wells will be contained and disposed of appropriately.
- Site activities are expected to be conducted in modified Level D PPE. PPE will be upgraded as necessary for organic vapor, dermal, and dust inhalation hazards.
- Disposable gloves and coveralls will be worn to minimize dermal exposure to potentially affected media.
- Any non-disposable PPE that comes in contact with potentially affected site media will be decontaminated prior to leaving the work area.
- A hand wash station will be established at the Site, or an existing, easily accessible washing location will be identified prior to fieldwork initiation.
- Hands will be washed thoroughly prior to eating, drinking, and using the bathroom.

- The PSO will have the NIOSH *Pocket Guide to Chemical Hazards* available for reference at the site. This reference identifies exposure routes, exposure symptoms, physical properties, chemical incompatibilities, first aid treatment, and other information for many chemical compounds.

2.3 Physical Hazards

Physical hazards expected during the site activities are primarily related to working with hydraulic equipment, utilities clearance for subsurface soil sampling, slip, trip and fall hazards, uneven terrain, heat stress and working in PPE. These hazards will be evaluated by the PSO prior to beginning work in a new area and, as conditions change, in the work area. These hazards will be evaluated by the PSO as necessary, and a tailgate safety briefing will be conducted by the PSO to identify additional safety protocols. The following precautions will be taken to reduce the physical hazard:

- The Pennsylvania One-Call service will be contacted no later than three days before site work is initiated for the purpose of locating underground utilities.
- A knowledgeable site or KU Resources representative will be responsible for utilities clearance outside the service area for Pennsylvania One-Call. No subsurface borings will be started at any location prior to utilities clearance.
- Safety eyewear and steel-toed safety footwear will be worn during all site tasks. Hard hats will be worn at any time there is a hazard presented by falling or flying objects.
- No confined space entries will take place under this Health and Safety Plan. If a confined space entry becomes necessary, appropriate confined space entry procedures will be detailed in an addendum to this plan.
- Activities conducted during hot weather will have an appropriate measure of heat stress monitoring. If necessary, the PSO will conduct a brief tailgate meeting to discuss symptoms of heat stress and heat exhaustion.
- Good housekeeping in the work area is a priority.

2.4 Engineering Controls for Hazard Reduction

Engineering controls will be used to reduce hazards during site activities. If necessary, a portable fan or blower will be used during soil and groundwater sampling to reduce the organic vapor hazard. After detection of organic vapors in the breathing space (or as determined by the PSO), the fan will be used to blow fresh air through the work area, thereby increasing vapor diffusion. The fresh air source must be free of exhaust from generators or vehicles. All personnel will work on the upwind side of the vapor source, and air monitoring will continue as determined by the PSO.

If necessary, engineering controls will be developed to minimize dust generation at the sampling location. For example, water may be sprayed on the surface soils to reduce breathing space dust concentrations.

2.5 Boundary Control

Boundary control is necessary to prevent unauthorized personnel from entering the work area/exclusion zone. The exclusion zone will be established using traffic cones and/or caution tape at all boring locations to prevent unauthorized personnel from entering the work area. The exclusion shall be a 20-foot square perimeter around the drilling equipment. The barrier for sampling activities defines the exclusion zone, and represents the nearest any unauthorized person should be to the active work area. Personnel should remain aware of the exclusion zone perimeter and prevent unauthorized persons access to the work area. Should unauthorized personnel enter the exclusion zone, and refuse to leave; all work will cease and will not continue until such time as unauthorized personnel leave the work area. If the on-site PSO deems that security around the site is sufficient to prevent unauthorized personal from entering the area of the exclusion zone, the boundary perimeter will not be needed.

All work will be performed in modified Level D PPE, unless upgraded PPE is warranted by air monitoring results or other recognized hazards. If Level C or B respiratory protection is required, the exclusion zone will be established at the greatest downwind extent of detectable organic vapors. The decontamination area will be established at the entrance/exit to the exclusion zone.

3.0 DECONTAMINATION AND DISPOSAL PROCEDURES

Decontamination procedures are established for the purpose of removing gross contamination that may have accumulated on workers and equipment during site activities and to prevent contaminants from migrating from the site. For purposes of decontamination each individual property will be considered a site. Personnel and equipment will be decontaminated prior to exiting a property and commencing investigation activities at an adjacent property. For this purpose a Contamination Reduction Zone (CRZ) will be established around each individual property.

All personnel and equipment working within the exclusion zone or work area will be required to pass through the contamination reduction zone upon exiting the property. This zone will be set up at some perimeter location.

3.1 PPE and Equipment Decontamination Procedures

All non-disposable PPE and small tool sampling equipment will be scrubbed with Alconox (or equivalent) laboratory-grade detergent solution and rinsed with potable water. Small tool sampling equipment includes such items as trowels and spoons, direct-push sampling tubes, drive points, and split-spoon samplers. Heavy sample equipment such as hollow-stem augers will be decontaminated with high-pressure steam cleaning using potable water.

Should it be necessary to transport sampling equipment prior to decontamination, it will be sealed in plastic, until as such time it is transported to a remote decontamination area, to minimize the chances of introducing contaminants to the sampling vehicles and other equipment.

3.2 Required Decontamination Solutions

- Alconox or equivalent laboratory-grade detergent solution
- tap water
- distilled water

3.3 Required Decontamination Tools

- wash basins
- scrub brushes
- paper towels
- sprayer
- plastic sheeting
- plastic trash bags

3.4 Waste Disposal Procedures

- Fluids (including groundwater and decontamination water) – will be containerized in DOT-approved containers prior to appropriate disposal.

- Solids (including drill cuttings) – will be containerized for until a determination has been made with regard to proper disposal.
- Disposable PPE and trash – will be segregated into contaminated and non-contaminated trash and subsequently containerized for appropriate disposal.

4.0 AIR MONITORING PROCEDURES

4.1 Required Monitoring Equipment

TYPE OF EQUIPMENT	NUMBER NEEDED
Photoionization Detector (PID)	1

4.2 Air Monitoring Equipment Protocols

Periodic to continuous monitoring with the PID will be implemented during all activities where volatile organic compound contamination is likely to be encountered. These activities include but are not limited to the following: all drilling activities, all sampling activities, and all XRF screening activities. The PSO must be aware that the PID responds variably to different compounds when calibrated to isobutylene. The NIOSH *Pocket Guide to Chemical Hazards* provides PID response data and other information concerning site-specific compounds.

4.3 Supplemental Monitoring

If the PSO determines that engineering controls are insufficient for controlling breathing space dust concentrations during site activities, a particulate monitor will be obtained and appropriate action levels will be determined. If PID measurements are consistently above 25 ppm (see table below), Dräger Tubes will be used to identify area-specific compounds.

4.4 Action Levels

Hazard	Monitoring Method	Action Level	Protective Measure
organic vapors while working in Level D PPE	PID	PID reading continuously above background to 5 ppm in the breathing space	Employ engineering controls (fan) and continue PID monitoring. If the condition persists, select Level C PPE, and continue PID monitoring
organic vapors while working in Level C PPE (with fan on)	PID and Dräger tubes	PID reading continuously above 25 ppm (but below 50 ppm) in the breathing space	Use Dräger tubes to selectively identify area-specific compounds*
unidentified organic vapors while working in Level C PPE	PID	PID reading continuously above 25 ppm in the breathing space	Egress and reassess. Level B PPE may be necessary

* A positive identification with a Dräger tube sets a maximum limit for work in Level C PPE at 50 times the PEL for that compound (per OSHA regulations). Unidentified compounds must be considered to have a PEL of 1 ppm; therefore, the maximum limit for working in Level C PPE with unidentified contaminants would be 50 ppm in the breathing space.

The above action levels are calculated using one-half the PEL multiplied by the respirator protection factor; therefore, for a contaminant with a PEL of 1 ppm, the maximum allowable breathing space concentration would be 25 ppm.

5.0 PERMIT-REQUIRED CONFINED SPACE ENTRY

There will be no permit-required confined space entry by any project personnel under this HASP. If it becomes necessary to enter a permit-required confined space, a Permit-Required Confined Space Entry Program that meets the requirements described in 29 CFR 1910.146 will be developed as an addendum to this HASP.

6.0 HAZARD COMMUNICATION PROGRAM

For each chemical introduced to the Site by KU Resources or its subcontractors (e.g., decontamination fluids, gasoline, etc.), Material Safety Data Sheets (MSDSs) will be available for review by all field personnel, subcontractors, and appropriate site and KU Resources personnel. These chemicals are expected to include:

- Alconox (detergent solution) for decontamination
- Gasoline/diesel (for engine operation)
- bentonite (for backfilling sampling locations)
- calibration gases (for PID operation)
- concrete (for flushmount construction)

The relevant MSDSs are attached to the HASP for reference.

7.0 PERSONAL PROTECTIVE EQUIPMENT

The protection equipment specified in the following lists is necessary to perform the designated activities at the designated level of protection. If Level B PPE becomes necessary, an addendum to this HASP will be prepared.

7.1 Equipment Specifications for Level D PPE

POSITIONS USING LEVEL D PROTECTION: All personnel involved in soil boring and groundwater sampling activities

Required PPE

- Steel-toed boots or shoes
- Protective gloves: Latex, vinyl or equivalent
- Safety eye wear, with side shields
- Hearing protection

PPE and emergency equipment available on an as-needed basis

- Protective coveralls: Kleenguard
- Protective overalls: Saranex-coated Tyvek (if a significant PCB exposure hazard exists)
- Chemical-resistant outer gloves: Nitrile or equivalent
- Disposable dust masks
- Eye wash bottles
- Escape self-contained breathing apparatus
- Protective boot covers
- Hard hat
- Splash goggles or face-shield
- Eye wash bottles

7.2 Equipment Specifications for Level C PPE

POSITIONS USING LEVEL C PROTECTION:* All personnel involved in soil boring and groundwater sampling activities

Required PPE

- Full-face, air purifying respirator (OSHA approved): Organic vapor/acid gas cartridge
- Chemical resistant boot cover
- Protective coveralls: Saranex-coated Tyvek or equivalent
- Steel-toed boots or shoes
- Protective gloves: Latex, vinyl or equivalent
- Chemical resistant outer gloves: Nitrile or equivalent

PPE and emergency equipment available on an as-needed basis

- Escape self-contained breathing apparatus

- Dust filter for air-purifying respirator
- High efficiency particulate filter for air-purifying respirator (for dusty conditions)
- Hard hat
- Hearing protection
- Eye wash bottles

* All work will be performed in Level D PPE unless upgraded PPE is warranted by air monitoring results or other recognized hazards.

8.0 EMERGENCY RESPONSE INFORMATION

8.1 Emergency Evacuation Procedures and Information

The Site evacuation procedures and escape routes will be identified prior to starting site activities. These procedures will be followed in the event of a site evacuation that is not directly related to site activities.

The following emergency evacuation procedures will be used if evacuation is required at the location of site activities.

1. Secure work area as much as possible, depending on severity of emergency.
2. Decontaminate personnel as efficiently as possible, depending on severity of emergency.
3. Notify PSO; PSO evaluates situation based upon available information.
4. PSO notifies appropriate internal and external emergency response personnel, as appropriate.
5. PSO notifies project manager, health and safety manager, and client representative.
6. Do not re-enter work area until hazards have been reassessed, safety plan has been reviewed, and all personnel have been briefed about any changes.

8.2 On-Site Emergency Responses

Emergencies encountered at the Site will be responded to via local emergency facilities. The phone list on the following page will be prominently posted at the job location. Locations of on-site emergency response facilities and available wash/shower stations will be identified prior to the start of site activities at a tailgate safety briefing.

8.3 Off-Site Emergency Resources

The nearest local hospital is Sewickley Valley Hospital, located in Sewickley, Pennsylvania. The hospital route and the hospital phone number will be posted at the job location.

8.4 Emergency Response Equipment

The following emergency response equipment will be available at the site:

- Latex gloves
- Nitrile gloves
- Protective coveralls: Saranex-coated Tyvek
- Escape self-contained breathing apparatus
- Safety glasses
- Hard hat
- First aid kit and trauma kit

- Protective goggles
- Eyewash station or bottles
- Cellular phone

POST IN FIELD OFFICE AND/OR FIELD VEHICLES

EMERGENCY PHONE NUMBERS AND INFORMATION

1. Designated Project Safety Officer: Raymond Brenner or designee
2. Local Emergency Resources:
- Ambulance (name): Local Ambulance Phone: 911
- Hospital (name): Sewickley Valley Hospital Phone: (412) 741 - 6600
- Police (name): Local Police Department Phone: 911
- Fire Department (name): Local Fire Department Phone: 911
- Nearest phone (location): A cellular phone will be available with the field team at the work location

KU Resources, Inc.	Name & Phone	
Project Safety Officer	Raymond Brenner	724-882-9291
Project Manager	Charles Haefner, Jr.	412-855-1628
Principle	Mark Urbassik	412-469-9331
Site Emergency Services	911	